

**METHOD FOR PATTERN RECOGNITION IN ENERGIZED CHARGE  
PARTICLE BEAM WAFER/SLIDER INSPECTION/MEASUREMENT  
SYSTEMS IN PRESENCE OF ELECTRICAL CHARGE**

**ABSTRACT**

To account for changing image contrast due to wafer/slider/mask charging in e-beam or ion beam wafer/slider/mask inspection or measurement tools, which could lead to false pattern recognition comparison and result in coordination verification failures, if a site of a wafer/slider/mask being inspected fails a pattern recognition test when compared to a first template, a second template configured with a different contrast is used for a second pattern recognition comparison after the tools starts stage search. Use of image histogram analysis principles can also be applied for interpolation or extrapolation of the two image templates for generating of a third template with a different image contrast from the first two for customizing template contrast for further pattern recognition robustness fine tuning. This synthesized template can serve as the “second” template or even be used as the third template in certain conditions where change of charging behavior from different production batches is seen over a time period.